

REMARKS/ARGUMENTS

Applicant has received and carefully reviewed the Advisory Action mailed October 23, 2006 and the final Office Action of the Examiner mailed August 9, 2006. Claims 1-34 remain pending. Reconsideration and reexamination are respectfully requested.

Allowable Subject Matter

Applicant thanks the Examiner for indicating that claims 4-7 would be allowable if rewritten in independent for including all of the limitations of the base claim and any intervening claims.

Phone Interview

Applicant thanks the Examiner for discussing the invention with their representative on October 30, 2006. The structure of the biasing mechanism with regard to causing water hammer in a fluid system and the structure of the brake for eliminating or reducing water hammer were discussed. No agreement was reached, however the Examiner indicated that he would consider a further response after final directed to the arguments presented in the phone interview. The substance of those arguments is presented below.

Rejections under 35 U.S.C. § 102(b)

Claims 1-3 and 8 are rejected under 35 U.S.C. §102(b) as being anticipated by Persons (U.S. Patent No. 2,052,987). The Examiner acknowledges that Persons does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, but asserts that Persons' system has a valve connected to a valve stem, and that when the valve stem closes against the valve seat, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. In the Advisory Action mailed October 23, 2006, the Examiner also asserts that the presence of water hammer and the removal of water hammer in the system are characteristics

of the fluid flow including the flow rate of the fluid, and that water hammer would not occur in a water system with a small fluid flow.

Independent claim 1 positively recites an actuator including a biasing mechanism structured to close a valve stem within a time period that would cause water hammer in a fluid system, and a brake that increases the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system. Applicant submits that the claimed actuator has a structure that, without the brake, causes water hammer, and with the claimed brake, eliminates water hammer in a fluid system. One of ordinary skill in the art would understand that, while it is true that water hammer would not occur in a system having a small fluid flow, the claims specifically state the biasing mechanism as causing water hammer, thus the fluid system referred to in the claim would have fluid flowing at a rate such that water hammer is caused by the biasing mechanism, and is eliminated by the brake.

Persons does not appear to teach anything with regard to water hammer. Persons appears to be directed to an air flow system, as indicated by Persons' teaching that "to open the valve the motor circuit 54 is closed, as for example, by the thermostat 58." See page 2, first column, lines 72-73. Additionally, Persons teaches:

If some provision is not made for retarding the movement of the valve when it is closed by the spring motor, the accumulated momentum of the parts will be such that the shock of seating, even with the interposition of the spring 9, will cause the valve to rebound with the result that undesirable fluctuations will be caused in the flow of fluid through the valve.

(Emphasis added; see column 2, lines 42-49). Persons thus appears to teach a system in which a valve will rebound against the seat if the movement of the valve is not retarded. Persons does not appear to teach that fluid flow causes or is involved in this rebounding movement. Applicant submits that one of ordinary skill in the art, upon reading Persons, would not interpret Persons as teaching anything with respect to water hammer.

Persons thus does not appear to teach each and every element of claims 1-3 and 8, as is required for an anticipation rejection. MPEP 2131 states that, in order to anticipate a claim,

"[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)." Applicant submits that, as discussed above, Persons does not appear to disclose the identical invention in as complete detail as is contained in the claims.

If the Examiner is asserting the claimed structure is an inherent property of the Persons valve, Applicant submits that there is no basis for such an interpretation. MPEP 2112 IV. states:

The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993) (reversed rejection because inherency was based on what would result due to optimization of conditions, not what was necessarily present in the prior art); *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)

(Emphasis added). Applicants submit that the claimed actuator assembly, in particular the biasing mechanism structured to close a valve stem within a time period that would cause water hammer in a fluid system, and the brake for increasing the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system, are not necessarily present in Persons. It appears the Examiner is asserting that the structure of Persons might have similar characteristics of the claimed structure, which is not a proper basis for rejection. Applicant submits that the valve of Persons is specifically designed and structured to prevent a valve from rebounding from its seat, and that such a structure would not necessarily be the same as the structure of the claimed biasing mechanism and brake.

The elements of independent claim 1 are not merely intended use, but impart structural requirements for performing certain functions. Persons does not appear to teach or suggest the claimed structural elements. For these and other reasons, independent claim 1, and the claims

dependent therefrom, are believed to be clearly patentable over Persons. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-3 and 8 are rejected under 35 U.S.C. § 102(e) as being anticipated by Min (US 2005/0092950). The Examiner acknowledges that Min does not particularly mention that the biasing mechanism is structured to close the valve stem within a time period that causes water hammer in a fluid system, but asserts that Min's system has a valve connected to a valve stem, and that when the valve stem closes the valve, the fluid in the fluid system will create a water hammer effect while the valve is closing due to the barrier in the flow path. As stated above, in the Advisory Action mailed October 23, 2006, the Examiner also asserts that the presence of water hammer and the removal of water hammer in the system are characteristics of the fluid flow including the flow rate of the fluid, and that water hammer would not occur in a water system with a small fluid flow.

Independent claim 1 positively recites an actuator including a biasing mechanism structured to close a valve stem within a time period that would cause water hammer in a fluid system, and a brake that increases the time period that the biasing mechanism closes the valve stem by an amount that eliminates water hammer in the fluid system. Applicant submits that the claimed actuator has a structure that, without the brake, causes water hammer, and with the claimed brake, eliminates water hammer in a fluid system. One of ordinary skill in the art would understand that, while it is true that water hammer would not occur in a system having a small fluid flow, the claims specifically state the biasing mechanism as causing water hammer, thus the fluid system referred to in the claim would have fluid flowing at a rate such that water hammer is caused by the biasing mechanism, and is eliminated by the brake.

Min does not appear to teach anything with regard to water hammer. Min appears to be directed to reducing the noise generated from a connection part of a deceleration unit connected to a motor axis in a motor brake system, and to increasing the life of the parts of such a system. See paragraphs 7-10. Applicant submits that one of ordinary skill in the art, upon reading Min, would not interpret Min as teaching anything with respect to water hammer.

Min thus does not appear to teach each and every element of claims 1-3 and 8, as is required for an anticipation rejection. MPEP 2131 states that, in order to anticipate a claim, "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989)." Applicant submits that, as discussed above, Min does not appear to disclose the identical invention in as complete detail as is contained in the claims.

If the Examiner is asserting the claimed structure is an inherent property of the Min valve, Applicant submits that there is no basis for such an interpretation. See discussion of MPEP 2112 IV above. Applicant submits that the valve of Min does not appear to have a structure that would necessarily be the same as the structure of the claimed biasing mechanism and brake. Applicant submits that the brake of Min is specifically designed and structured to allow for reverse rotation of the motor with reduced noise and wear, and that such a structure would not necessarily be the same as the structure of the claimed biasing mechanism and brake.

The elements of independent claim 1 are not merely intended use, but impart structural requirements for performing certain functions. Min does not appear to teach or suggest the claimed structural elements. For these and other reasons, independent claim 1, and the claims dependent therefrom, are believed to be clearly patentable over Min. Reconsideration and withdrawal of the rejection is respectfully requested.

Rejections under 35 U.S.C. § 103(a)

Claims 9-25, 27-30, and 33 are rejected as being unpatentable over Min. Applicants respectfully traverse the rejection. Regarding independent claims 9 and 27, the Examiner asserts that Min teaches the rotational velocity of the motor shaft is limited by the brake and the brake can be altered to adjust the rotation speed of the motor, and that making such an adjustment would have been obvious to promote a longer service life of the actuator components. MPEP 2143.01 III states that the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. Applicant submits that there is no motivation or suggestion in Min to modify the

brake to have a configuration in which it limits the rotational velocity of the output shaft of the motor to less than 1000 RPMs, as is recited in claims 9 and 27. Additionally, there is no indication or suggestion that making such a modification would result in a longer service life of the actuator components, or reduce water hammer. It appears that the only motivation for modifying the system of Min to achieve the specific rotational velocity of the motor recited in claims 9 and 27 is found in Applicant's own specification, which is not a proper motivation for obviousness.

Independent claims 21 and 29 recite, in part, a valve assembly and method, respectively, comprising a damping mechanism configured to limit a speed of the valve when the actuator assembly is moving the valve from the open position to the closed position such that the valve moves from the open position to the closed position in 4 seconds or more. The Examiner acknowledges that Min fails to disclose such elements. The Examiner asserts that it would have been obvious to adjust the rotation speed of the motor to a desired rpm and a desired valve closing time because min teach that "the rotation speed of a motor is adjusted." However, there is no indication or suggestion in Min that adjusting the brake in the system of Min to achieve the time period recited in claims 21, 29 and 33 or the rotational velocity of the motor as recited in claims 9 and 27 would be a desirable change or that such modifications would result in a longer service life of the valve components, or reduce water hammer.

In response to Applicant's arguments, the Examiner asserts that Min teaches "the rotation speed of a motor is adjusted" and "a deformation degree of the brake 51 can be adjusted depending on the rotation speed of the rotor 53", and therefore it would have been obvious to adjust the rotation speed of the motor to a desired rpm and a desired valve closing time. Applicant respectfully traverses the rejection. While Min teaches that the rotation speed of the motor can be adjusted, there is no motivation for one of ordinary skill in the art to adjust the rotational velocity to less than 1000 rpm, as is specifically recited in independent claims 9 and 27, or to adjust the assembly to close a valve from the open position to the closed position in 4 seconds or more, as is specifically recited in independent claims 21 and 29. As discussed above, Min does not appear to teach anything with respect to water hammer. Further, Min does not

appear to teach anything with respect to adjusting the motor to achieve any particular rotational velocity or valve closing speed. Thus, the only motivation for modifying Min to achieve the specifically claimed elements would appear to be found in Applicant's specification, which is an improper basis for an obviousness rejection. Thus, for at least these reasons, independent claims 9, 21, 27, and 29, and the claims dependent thereon are believed to be clearly patentable over Min. Reconsideration and withdrawal of the rejection is respectfully requested.

Claim 26 is rejected under 35 U.S.C. §103(a) as unpatentable over Min in view of Pasch et al. For at least the reasons set forth above, Min does not appear to teach or suggest the basic elements of independent claim 21, from which claim 26 depends. Pasch et al. does not appear to teach what Min lacks. Thus, for these and other reasons, dependent claim 26 is believed to be patentable over Min in view of Pasch et al.

Claims 31 and 32 are rejected as being unpatentable over Schreiner, Jr. et al. (US 6,073,907) in view of Min. The Examiner asserts that Schreiner, Jr. et al. discloses a method for replacing a valve actuator system by removing either the entire actuator or removing a casing to obtain access to the motor. The Examiner acknowledges that Schreiner, Jr. et al. fails to disclose using a motor having a brake to replace the motor in the housing, but asserts that it would have been obvious to one of ordinary skill in the art to use the motor with a brake as taught by Min in the removable and interchangeable valve actuator system of Schreiner, Jr. et al. in order to prevent the valve components from being damaged. Applicant respectfully traverses the rejection.

As stated by the Examiner, while Schreiner, Jr. et al. teach a motor in their system, they do not teach a brake in the valve actuator system. Applicant submits that there is no motivation for one of ordinary skill in the art to replace the motor without a brake as taught by Schreiner, Jr. et al. with a motor having a brake. Schreiner, Jr. et al. teach:

the biasing force of spring 276 functions to return drive gear 252 to its position of FIG. 20 in which valve member 80 is in its open position of FIG. 9. Spring 274 engages the facing surface of rib 142 as drive gear 252 approaches its position of FIG. 20 to gradually slow movement of drive gear 252 as valve member 80 approaches its fully open position. Drive gear stop arm 266 engages a stop

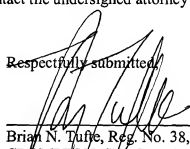
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surface 279 provided on adaptor plate 108 to provide a positive stop for drive gear 252 and to maintain drive gear 252 in a predetermined position to provide a constant predetermined open position for valve member 80.

(Emphasis added; see column 14, lines 41-52). It would appear the valve system of Schreiner, Jr. et al. utilizes a spring and thus operates without the need for a brake. Further, it is unclear how adding a motor with a brake would prevent the valve components from being damaged, as asserted by the Examiner. The spring and drive gear stop arm disclosed by Schreiner, Jr. et al. would appear to provide the desired slowing and stopping action of the valve system to avoid damage to the valve system. Further, independent claims 31 and 32 recite methods of reducing water hammer in a fluid or liquid flow system, respectively, caused by a previously installed water valve assembly. The claims thus positively recite the method involving the steps of removing the actuator assembly, or at least a portion of the actuator assembly housing, respectively, from the system that has water hammer. Neither Schreiner, Jr. et al. nor Min appear to teach anything regarding water hammer. Thus, Applicants submit that there is no motivation for one of ordinary skill in the art to modify the valve system of Schreiner, Jr. et al. to include elements of Min or to otherwise modify the valve system of Schreiner, Jr. et al. to achieve the elements as claimed. Reconsideration and withdrawal of the rejection are respectfully requested.

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Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney at 612-359-9348.


~~Respectfully submitted,~~

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